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UNIVERSITY OF MICHIGAN.

THE

PRESIDENT'S REPORT

TO THE

BOARD OF REGENTS

FOR

THE YEAR ENDING JUNE 30, 1876.

ANN ARBOR:
PUBLISHED BY THE UNIVERSITY.
1876.

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REGISTER STEAM PRINTING HOUSE.

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PRESIDENT'S ANNUAL REPORT.

To the Honorable Board of Regents:

I offer you my Report for the University year which ended June 30, 1876.

The changes in our Faculties have been as follows:

John W. Langley, B. S., was in August, 1875, appointed by the Executive Committee, Acting Professor of General Chemistry and Physics, and in June, 1876, was promoted by the Board of Regents to the full Professorship. In March, 1876, J. B. Steere, Ph. D., was elected Assistant Professor of Paleontology. Preston B. Rose, M. A., M. D., Instructor in the Chemical Laboratory, was in October, 1875, made Assistant Professor of Physiological Chemistry, was suspended in December, restored to his work in March, 1876, and was dismissed from his office in June last. In June, 1876, H. B. Hutchins, Ph. B., Assistant Professor of History and Rhetoric, resigned his chair and Isaac N. Demmon, M. A., was chosen to succeed him. In August, 1875, John J. Mapel, M. A., was appointed Instructor in German and French for one year, during the absence of Instructor Hennequin in Europe. Samuel T. Douglas, Ph. B., Ph. C., was in June, 1875, appointed Assistant in the Chemical Laboratory. In August, 1875, Abram V. E. Young, Ph. B., Ph. C., was appointed Assistant in Chemistry and Physics. In December, 1875, V. C. Vaughan, M. S., and Kate Crane, Ph. C., were appointed Assistants (for temporary service) in the Chemical Laboratory. In June, 1876, Mr. Vaughan received a permanent appointment to the same post which he had occupied temporarily. In June, 1876, M. W. Harrington, M. A., Assistant Professor in charge of Zoölogy and Botany, received permission to be absent in Europe for two years, and Volney M. Spalding, M. A., was appointed Instructor in those branches.

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The continued illness of Dr. Henry S. Cheever constrained him to resign in April last, the chair of Physiology and Materia Medica, which he had so ably filled for several years. Prof. Frothingham is henceforth to give the instruction in Materia Medica, and the title of his Professorship has accordingly been modified.

W. L. B. Jenney, C. E., was, in March last, appointed to the chair of Architecture and Design.

In July the Executive Committee, who at the June meeting of the Board were charged with the duty of appointing two Lecturers in the Homœopathic Medical College for one year, selected F. A. Rockwith, M. D., as Lecturer on Obstetrical Therapeutics, and J. C. Gilchrist as Lecturer on Surgical Therapeutics.

The same Committee have also selected Prof. Burt C. Wilder, M. D., as Lecturer on Physiology for one course in the Department of Medicine and Surgery.

The instruction in Mineralogy and Geology has been given during the year by Prof. Pettee.

The whole number of persons on our Faculty roll was fifty-three. Three were not on duty here.

The total number of students in the University last year was 1,127, distributed as follows:

Department of Literature, Science, and the Arts.

Resident Graduates	15
Seniors	60
Juniors	73
Sophomores	87
Freshmen	119
In Selected Studies	19
In Pharmacy	79
Total	457

The Polytechnic School contains—

From the above Department	149
From the Department of Medicine and Surgery	2
Total	151

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Department of Law.

SENIORS	157	
JUNIORS	164	
		321

Department of Medicine and Surgery.

STUDENTS—Total	312

Dental College.

STUDENTS—Total	20

Homœopathic Medical College.

STUDENTS—Total	24
	1,129
Deduct names twice counted	2
Total in the University	1,127

Just one-half of all the students this year were from Michigan, which is a larger proportion than usual. Thirty-four of our States and Territories, and Ontario (Canada) and Japan, have furnished us students. Illinois sent us 98, Ohio 85, New York 75, Pennsylvania 47, Indiana 46, Wisconsin 36, Iowa 20, Minnesota 20, Missouri 15, Kentucky 10, California 10. From New England, every State being represented, we had 14. From the Middle States, New York, Pennsylvania, New Jersey, Delaware, we had 129. Seven of the Southern States were represented in the classes. When we consider the financial embarrassments of our people, and remember how professional schools have been multiplying, the attendance upon the University must be considered satisfactory.

The number of women in attendance during the past year is 101, distributed as follows: in the Department of Medicine and Surgery, 37; in the Law Department, 2; in the Homœopathic Medical College, 2; in the Department of Literature, Science, and the Arts, 60. Of these last there were in the Senior Class 11; in the Junior Class 11; in the Sophomore Class 15; in the Freshman Class 16; in Select studies 3; in Pharmacy 3. The experience of this last year confirms the opinion we have been led to form by the experience of previous years, that

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women who come here in good health are able to complete our collegiate or professional courses of study without detriment to their health. It is worthy of note that the number of women in the University has varied very little during the last three years. This fact may indicate that we are not to expect at present any further rapid increase in the proportion of women to men in the University. The great majority of women will for the present probably seek at least their collegiate education in schools and colleges established for their sex alone. But we may well believe that the opening of this University and of other colleges to students of both sexes, has furnished a healthful and powerful stimulus to those Institutions to improve the quality and widen the range of their work.

The following is the number of degrees conferred:

Pharmaceutical Chemist	31
Civil Engineer	11
Bachelor of Science	14
Bachelor of Philosophy	13
Bachelor of Arts	38
Master of Science (on examination)	1
Doctor of Philosophy (on examination)	2
Master of Arts (in course)	31
Master of Science (in course)	7
Master of Philosophy (in course)	6
Doctor of Medicine	93
Bachelor of Laws	159
Doctor of Dental Surgery	4
Total	410

The degree of Doctor of Philosophy was for the first time conferred on examination. This degree, which is bestowed only on candidates, who have pursued extended post-graduate courses, and sustained most rigorous examinations is sought by some of our most aspiring and energetic graduates. After this year degrees in course will not be given. Every degree bestowed will then have a real significance.

The plan of receiving students from certain approved High Schools on diploma and without examination by us has worked so satisfactorily that the Faculty have deemed it prudent and

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wise to offer to receive students on diploma from a class of High Schools whose graduates have heretofore been admitted by us only on examination. We have, until this year, declined to approve any school which was not so organized and equipped as to be able to prepare students simultaneously for all our undergraduate courses of study. But we now propose to approve any good High School, which can show that it is thoroughly preparing students for any one of our classes. It seems better that a school should be encouraged to train students well in one or two courses than by undertaking more than it can do successfully to fail in doing any of its work well. And there seems no reason why a school which can prepare its pupils satisfactorily for our Scientific and Engineering courses alone should not be recognized by us as competent to do that particular work. It is thought that this modification of our plan will be helpful to many schools, acceptable to the public, and not injurious to the University.

We received last year on diploma: From Ann Arbor, 44; Detroit, 3; Coldwater, 1; Pontiac, 3; Flint, 1; Battle Creek, 2; State Normal School, 1; Fenton, 4; total, 59.

I think I have not known since my connection with the University so satisfactory a year's work in the undergraduate department. There has been hardly an occasion for the slightest disciplinary action. The students as a body have addressed themselves to their duties with marked assiduity. Another year's experience confirms the impression indicated in my last report that the liberty in the choice of studies in the Senior year now left to the students has greatly increased the value and amount of work accomplished in that year. To a limited extent elections of studies have been opened in the Junior and Sophomore years. We are constantly making progress in the application of laboratory methods of instruction in botany and biology. Admirable work has been accomplished in these studies. It is hard to be patient under the delay to which the scantiness of our means forces us, in equipping our physical laboratory. If physics are to be adequately taught to advanced students, it they are to be taught as chemistry, botany and biology are now

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taught, we must furnish ourselves with apparatus for our physical laboratory. We are in danger of falling behind most of the better institutions of the country in this regard.

Prof. Watson returned from his journey to China in time to resume his labors at the beginning of the academic year. Within the past twelve months he has discovered three more asteroids, making twenty in all, which are credited to him. It is much to be regretted that an Observatory, at which so much work is done, giving a wide reputation to the University and making most valuable contributions to science, is not provided with an adequate fund for the payment of assistants and computers, and for the publication of full reports of the labor accomplished.

The chair of Geology has now been vacant for a year and a half. Most of the instruction properly falling to that chair was given last year and is to be given this year by Prof Pettee. You are aware that our delay in filling the chair has been mainly due to economical considerations. It is at considerable inconvenience that Prof. Pettee rescues time this year from his work of Mining Engineering to discharge his present duties. The claims of his own department will be so pressing after this year that some other provision must be made for the instruction in Geology. I hope the condition of our treasury will permit us to call some suitable person to the Professorship.

We had last year three new schools to organize, the School of Mines, the Dental School, and the Homœopathic Medical School. The means placed at our disposal for the purchase of apparatus for the School of Mines enabled us to provide ourselves with a fair equipment, comprising furnaces, stamp mill, crusher, ores, furnace products, etc. Although the announcement of the organization of the school could not be made until just before the opening of the academic year, fifteen students were registered on its roll. It is evident that there is a real want for the training which this school aims to give.

It is with peculiar pleasure that I announce the generous purpose of the Directors of the Calumet and Hecla Mining Company to present to the School of Mines a beautiful model of their

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stamp mill, after the close of the Centennial Exhibition at Philadelphia. It has there attracted much attention. The cost of this model is, I am told, at least twelve thousand dollars. This gift is, therefore. larger than any before made to the University by any individual or private corporation. Mr. Alexander Agassiz, President of the Company, in a letter dated Sept. 1st, made known the intention of the company to favor us with this most valuable addition to our means of illustrating the instruction in mining. We cherish the gift not only for its intrinsic value, but also because it evinces on the part of those actively engaged in the mining industry of our State a most lively and helpful interest in our enterprise.

I beg leave to direct your attention to a report herewith submitted, from the Profsssor of Mining Engineering, concerning the School of Mines, its work, expenditures and needs. It will be seen from his detailed statement that a good beginning has been made towards the outfit of the School. The funds appropriated have, I think, been carefully and judiciously expended. A reverberatory furnace, a blast furnace and books are among the pressing wants, for which appropriations are desired. Prof. Pettee's suggestions concerning a summer trip of the students to the mining regions of the Upper Peninsula for special study there and the inquiry as to what shall be the requisites for the degrees of Civil Engineer and Mining Engineer are commended to your consideration. Of the great prospective usefulness of this School, if the Legislature shall provide for its continuance. there is no longer room to doubt. For the deep interest which our friends in the Upper Peninsula have taken in it, and for the valuable assistance they have rendered us, we are very thankful.

The act, which establishes the School of Mines, provides for a chair of Architecture and Design. We were unable to fill the chair in time to begin instruction last year. But Mr. W. L. B. Jenney, of Chicago, having accepted the Professorship last spring, preparations were at once commenced for the work of the new academic year. Orders were given for books, models, casts, and other necessary materials for illustrations in teaching. Prof. Jenney also gave two introductory lectures on Architecture. We

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have not looked for a large number of students the first year, but there can be no doubt that there will be a considerable demand* for instruction in this department. Certainly there can be no doubt that there is a great need of thoroughly trained architects, who can bring to their work refined and educated taste and scientific knowledge.

The Dental School opened with an attendance, which in the circumstances must be deemed fair. It was not until a short time before the beginning of the term that the announcement of the School could be put in circulation. A class of twenty received instruction, of whom four graduated with the degree of Doctor of Dental Surgery. We have aimed to make the course one of great thoroughness, and to a certain extent to grade the work. The exceptional advantages furnished to dental students by our medical college and our chemical laboratory must make this School especially attractive and serviceable to all who desire a complete knowledge of dental science. We desire to recognize with appreciation the hearty support and the timely help, which the dentists of Michigan have given to the School. If the attendance increases, as we have a right to expect it will, ampler accommodations will be needed. A somewhat larger annual appropriation is indeed quite indispensable to the largest prosperity of the School.

I desire to call the attention of the Legislature and of all the friends of the University, to the fact that the Acts establishing the School of Mines and the Dental School, provided only two years' support for those schools. Unless, therefore, the Legislature at its coming session, renews the appropriations, the existence of those two schools must terminate at the close of the present University year. It is to be hoped that the same generous spirit, which prompted the original endowment, will also lead the Legislature to provide for their continuance. They are both giving a promise of prosperity and usefulness, which justifies the fostering care of the State.

The Homœopathic Medical College started under special dif-

* A class of seven are pursuing this course. In view of the brief notice which could be given of the details of the work, this must be regarded as a satisfactory number. Several other students regularly attend the lectures of the course.

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ficulties. Like the other new schools it had but small opportunity to make known in advance its plan. The plan, when announced, met with some spirited opposition from a certain number of homeopathic physicians in the State. A class of twenty-four attended the lectures, but as they were all first year students, none were prepared to graduate at the end of the term. There was, however, a good *esprit de corps* among the students, and now that the Faculty has been enlarged, the prospect for the School seems satisfactory.

Though it had been feared and predicted by many that the establishment of the Homœopathic Medical College would cause a great reduction in the number of students in the Department of Medicine and Surgery, (the old Medical College), yet three hundred and twelve were actually in attendance. While this is a somewhat smaller number than the average for several years past, it is almost exactly the same as the number in attendance in 1872–3. It is probable, however, that some were induced to go elsewhere on account of the founding of the Homœopathic College. Diligent, and I must be permitted to say, discourteous efforts were several times made by interested persons to breed disaffection among our students, and to frighten them away from here, under the warning that their time of study here would not be recognized at other schools, and that, if they graduated, their diplomas would not be accepted by the profession. These attempts to interfere with us failed of their end, and a class of about the usual size was graduated.

Much interest was very properly felt in our second year's trial of examinations for admission to the Medical School, since no other school in the country had yet ventured to take this slight step towards raising the grade of medical education.* We have been somewhat criticised, and singularly enough, by friends of schools which hold no examinations for entrance, because our examination papers were not more difficult. But easy as they were, making only a demand for a decent English education, they were severe enough to exclude several applicants, who, however,

* The candidates for admission to the Dental School and to the Homœopathic Medical College were also subjected to the same examination.

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found no difficulty in gaining immediate admission to other schools. We shall continue to elevate the standard of examination just as rapidly as the diffusion of education among the class, which furnishes medical students and the co-operation of other schools will warrant.

Owing to various unforeseen delays, our new Hospital Buildings were not completed in time for occupancy last year. This was a serious disappointment. But we are now to enjoy the advantages, which they will offer, for clinical teaching. This will be a most valuable addition to our means of instruction. The buildings are so tasteful that they enhance the beauty of our grounds.

A considerable number of the medical profession have seen fit to indulge in very sharp criticisms of our Medical Faculty, the Regents and the Legislature, because students in the Homœopathic College are allowed to attend lectures in the old Medical School. I do not refer to this fact for the sake of discussing the position of these critics, but simply for the purpose of reminding you that these unpleasant attacks have not driven our Professors from their posts. In these most trying circumstances they have been faithful to the University, and are deserving of all commendation for their devotion to her interests. We have abundant and most gratifying proofs that the attacks which have been so freely made on us for our plan of furnishing medical education to students of two schools, have not diminished the respect and esteem in which the University is held by the citizens of this and other States.

The Law School has had a very prosperous year. Its hold upon the public seems to be deep and strong. Professor C. I. Walker, who had at our request held his resignation in abeyance for a year, was compelled by the pressure of his professional business to ask a permanent release from the duties of the chair which he had so long and so ably filled. We have been fortunate enough to secure as his successor, William P. Wells, Esq., who has so acceptably occupied the chair during the absence of Professor Walker.

The School of Pharmacy in its prosperity continues to make

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larger and larger demands especially upon the Professors and Instructors in Chemistry and Botany. In my opinion a larger force is now required for the proper instruction of our various classes in Chemistry. To a greater extent than is now possible, the instruction of the College class and of the Pharmacy class in Chemistry, should be separated. The graduating class in the Pharmacy School, in June, numbered thirty-one.

The Librarian's report shows that there have been added to the Library during the past year by purchase 332 volumes and 8 pamphlets, by gift 182 volumes and 131 pamphlets, and by binding 107 volumes. Total increase, 621 volumes and 139 pamphlets.

We are suffering a two-fold inconvenience. In the first place we are not able to supply by purchase more than a tenth of the books we most urgently need to purchase every year. In the second place our Library room is too small for the proper accommodation either of our books or of our readers. The Regents have directed a plan of a new building to be prepared, though private munificence, or public appropriation must furnish the means for erecting the building. If we are to have a great and flourishing University here, we must have a great Library.

Our Museum continues to grow with a good degree of rapidity. The most valuable additions this year, have been those from the collections Prof. Steere made in Formosa and the Philippines. He has taken a portion of his collections to London to identify and name them. He finds that he has many new species of birds. The books of the Museum give the following figures: Added during the year, zoology; general donations, 325 species, 1,300 specimens. Prof. Steere's collection 23,900. Botany, general donations, 4,000 species, 6,000 specimens. Prof. Steere's collection, 2,506 specimens. Archæology; general donations, 14. The entire number of specimens in our Museum is nearly 255,000.

If the whole of the collection, which Prof. Steere has brought home, remains permanently with us, it is clear that we must have more spacious quarters for our Museum. We are already straitened for room. Our collections have already become so numerous that they naturally attract gifts. We are constantly receiving

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valuable donations. Persons, who wish to bestow choice specimens on some institution, generally prefer to add them to a choice collection. Since, also, we make it our constant study to increase our supply of illustrative scientific speeimens, we may reasonably hope for a contiuous and rapid growth of our Museum. We must provide for such a growth. I think we have already reached the point where a new and commodious building for the storing of our collections, and perhaps for furnishing us a few more lecture rooms for classes in Science, a physical laboratory, and large working rooms for the instruction in mining and in architecture, is a real and pressing need. Whether such a building or a new Library building is most needed, it might be difficult to say. But it is not easy to see how we can long do our work with efficiency, unless we have them both. At your last meeting, you directed the Professor of Architecture to prepare a plan of an edifice suitable for both purposes. Reflection has bronght me to the conclusion that it will be better to erect separate buildings for the Library and the Museum. To the Library a wing might be added for the Art Gallery. If for no other reason, I should recommend the separation of the Museum from the Library as a precaution against fire. But our friends everywhere should understand the serious inconvenience we are suffering for the lack of both buildings. If the present Museum is vacated, it will supply us with additional recitation rooms, for the want of which we are now, at times, somewhat embarrassed.

Prof. Frieze has this year kindly given himself the trouble to prepare and print a new and instructive catalogue of the collections in the Art gallery. It was a long and laborious task to edit the work with the critical care which he gave to it. This catalogue greatly enhances the value of the collections to all visitors.

At the request of the Centennial Commission from Michigan and of Governor Bagley, we sent to the Centennial Exhibition at Philadelphia, the following articles to form part of the educational exhibit of Michigan: A volume containing the last Triennial Catalogue, the last Annual Calendar, and a very succinct and interesting Historical Sketch of the University, which, at my request, Prof. C. K. Adams had the kindness to write, and Prof.

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Frieze's catalogue of the Museum of Art and History. A volume containing Photographs of our Buildings. A volume of Engineering Drawings, executed by our students. Other Engineering Drawings, accompanying graduation theses. A volume of Drawings, illustrating microscopical studies in Botany. A similar volume of studies in Biology. A case of rare shells and one of rare birds from the Beal-Steere collection. (The cases were furnished by Mr. R. A. Beal.) A complete set of Pharmaceutical Preparations, as prepared by members of graduating classes in our school of Pharmacy. A chart, showing the full course of free public instruction in Michigan through the Primary, Grammar and High Schools and the University; also, through the Normal School and the Agricultural College. This chart was executed by order of Governor Bagley in our Engineering Department under the special direction of Instructor C. S. Denison. Lastly, a brief explanation prepared by Prof. Frieze, of the system represented on the chart. Our contribution to the Exhibit seems to have been examined with interest by the students of our American educational systems; and has received the formal approbation of the Judges.

The Report of the Finance Committee, which is presented at this meeting, gives the details of our receipts and disbursements. Our income barely suffices to meet the pressing demands made by our large and varied work. It is only by denying ourselves help which we greatly need both in teachers and in means of illustrations that we are able to get on. When the Act granting us the one-twentieth mill tax was passed, we hoped that at the re-appraisal of the taxable property of the State in 1876, an increased valuation might yield us a somewhat larger income. But as the valuation stands unchanged, our resources are not enlarged. With a plain statement of our condition we must therefore leave our case in the hands of the people of Michigan, and ask them to do for us what seems to them wise. As we recall the generosity which they manifested through their Legislature two years ago, we do not suffer ourselves to doubt that the interests of the Institution, in which they have shown so much pride, are safe in their care.

Respectfully submitted, JAMES B. ANGELL.

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APPENDIX A.

REPORT OF THE FINANCE COMMITTEE.

The Finance Committee submit the following report of the receipts and disbursements of the University for the fiscal year ending June 30th, 1876:

RECEIPTS. (*General Fund.*)

Balance in Treasury July 1st, 1875	$	2,294 11
Received from the State Treasurer on account of University Interest Fund		38,427 23
Received from the State Treasurer on account of 1-20th Mill Tax		31,500 00
Received from the Steward on account of Students' Fees		29,800 00
Received on account of temporary loans		12,585 34
Received for interest on Treasurer's account		214 32

RECEIPTS. (*Special Fund.*)

Received from the State Treasurer on account of Water Supply	5,000 00
Received from the City of Ann Arbor for New Hospital Buildings and equipment	4,000 00
Received from the State Treasurer for New Hospital Buildings and equipment	8,000 00
Received from the State Treasurer for account of Homœopathic Medical College	6,000 00
Received from the State Treasurer for account of College of Dental Surgery	6,000 00
Received from the State Treasurer for account of Mining School Equipment	2,500 00
Received from the State Treasurer for account of General Expenses of Mining School	4,000 00
Total Receipts for the year	$150,321 00

DISBURSEMENTS.

Paid Salaries and Janitors' wages as per Pay Roll herewith submitted	70,816 25
Redemption of outstanding warrants	3,000 00
Accrued interest on outstanding warrants and temporary loans	257 07
Steward's disbursements as per vouchers herewith submitted	28,985 43
Steward's disbursements on account of Homœopathic Medical College Equipment	1,390 57
Steward's disbursements on account of the College of Dental Surgery	858 89

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Steward's disbursements on account of the School of Mines	2,866 30
Steward's disbursement on account of the New Hospital Building and Equipment	10,887 72
Steward's disbursements on account of the Water Works,	7,212 43
Balance carried to new account	24,046 34
	$150,321 00

Of the above balance there was due for salaries on the 1st day of July, 1876, the sum of $17,020 82.

The warrants outstanding on the first day of July, 1876, were in amount $13,500. If we add to this the sum due for salaries on that day, namely $17,020 82, it will be observed that there was an actual indebtedness of $6,474 48.

The estimated receipts for the fiscal year ending June 30, 1877, are as follows:

Balance in the Treasury July 1, 1876	$ 24,046 34
For University interest	38,400 00
Students' Fees and Diplomas	27,000 00
Annual State aid, act of 1873, 1-20 Mill Tax	31,500 00
Annual State aid, act of 1875, Homœopathic Medical College	6,000 00
Annual State aid, act of 1875, School of Mines	10,500 00
For chemicals and apparatus, Chemical Laboratory	6,000 00
	$ 143,446 34

The disbursements for the same time are estimated as follows:

For salaries of Professors in all of the departments and for Janitors' wages	$90,900 00
For repairs and alterations	2,000 00
For fuel and light	5,000 00
For Libraries	3,000 00
For Insurance	2,500 00
For Annual Calendar	1,500 00
For Hospital	1,000 00
For improvements of the grounds	500 00
For postage	500 00
For Regents' expenses	750 00
For Steward's contingent expense account	5,000 00
For Homœopathic Medical College (current expenses)	600 00
For College of Dental Surgery (current expenses)	400 00
For Chemical Laboratory (current expenses)	6,000 00
For Museum and Microscopical room	1,000 00
For Physics and Engineering department	1,000 00
For redemption of outstanding warrants	13,500 00
	$135,150 00

The condition of what are called "Special Accounts" as stated by the Treasurer in his report, is as follows:

I. Water Supply Account.

The amount received from the State Treasurer and covered into this account is	$ 5,000 00
The disbursements to date have been	7,212 43
The excess of expenditures $2,212 43 which has been paid from General Fund	

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II. New Hospital Building and Equipment Account.

The receipts carried into this fund are as follows:

1875.		
September 1, received from the City of Ann Arbor	$4,000 00	
October 27, received from State Treasurer for construction	5,500 00	
October 27, received from State Treasurer for equipment account	2,500 00	
		$12,000 00
October 27, disbursed for construction	$9,271 00	
October 27, disbursed for equipment	1,606 72	
		$10,877 72
Balance in the Treasury		$ 1,122 28

III. Homœopathic Medical College.

1876.	
January 25, amount secured from State Treasurer	$ 6,000 00
January 25, amount disbursed	4,990 57
Unexpended balance in the Treasury	$ 1,009 43

IV. The Dental School.

The receipts placed to the order of this account are as follows:

1876.		
January 26, received from State Treasurer	$3,000 00	
March 14, received from State Treasurer	3,000 00	
		$ 6,000 00
Disbursements to date		3,458 89
Unexpended balance in the Treasury		$ 2,541 11

V. The School of Mines.

1876.		
February 3, received from State Treasurer for equipment account	$2,500 00	
February 3, disbursements to date have been	2,866 30	
Excess of disbursements		$ 366 30
May 4, received from State Treasurer for account of current expenses	$4,000 00	
May 4, disbursements on account of current expenses to date	2,500 00	
Balance to credit of current expense account.		$ 1,500 00

There has been received at the Chemical Laboratory from the sale of chemicals, apparatus etc., during the year ending June 30, 1876, the sum of $6,996 74. The disbursements for the expenses of the Laboratory during the same time were $6,066 59, showing an excess of receipts of $930 15.

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The annual report of the Treasurer with a full list of all the warrants paid by him is herewith submitted. This list of warrants has been carefully compared with the books of the Secretary and found to be correct.

Your committee submit herewith a list of all of the officers, Professors and employes of the University, showing the amount of salary paid each.

In submitting the foregoing report, your Committee would call attention to the ever recurring closeness with which the funds of the University are consumed. The fields of labor are large, and we presume such will always be the case. We are confident that our funds have been wisely expended, and that as much has been accomplished as could be expected.

SAMUEL S. WALKER,
Of the Finance Committee.

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APPENDIX B.

PROFESSOR PETTEE'S REPORT ON THE SCHOOL OF MINES.

To the President of the University:

DEAR SIR:—In view of the approaching meeting of the Board of Regents, I beg leave to submit the following report and suggestions in relation to the School of Mines.

The amount of the special fund provided by the last Legislature for the equipment of the School, exclusive of salaries, was five thousand dollars. One-third of this sum was set aside at the June meeting of the Board for the use of the Department of Architecture and Design. The remainder, with the exception of a small balance of less than seventy-five dollars, hardly sufficient to cover the necessary incidental outlays of the current year, has been expended under the direction of the Professors of Metallurgy and Mining Engineering. The statement below shows in round numbers how much has been used for the different purposes specified.

Cost of material and labor in fitting up metallurgical laboratory	$425 00
Melting furnaces, forge and settings	650 00
Assay furnaces, tools, apparatus, and stock	425 00
Laboratory crusher	50 00
Stamp mill, extra parts, shafting and labor	400 00
Stock of gold, silver, and lead ores	225 00
Balances and appurtenances	210 00
Cost of material and labor in fitting up balance room	200 00
Mineral collection for the use of students, and set of glass crystal models	350 00
Mining, metallurgical, and geological drawings and tracings	50 00
Freight and express bills	125 00
Printing, advertising, and traveling expenses	150 00
Total	$3,260 00

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Nothing further can be added to the equipment of the school, without aid from the Legislature or from some other source.

In the metallurgical laboratory as now equipped, there are good facilities for giving instruction in Assaying, but for the illustration of more extensive operations and the important methods employed in actual practice, other appliances will be needed. A reverberatory furnace and a small blast furnace ought to be erected at an early day.

The ores of gold, silver, and lead, with which the laboratory has been stocked, were obtained in part from the Wyandotte Silver Works, and in part through the kind assistance of Mr. A. B. Wood, of Ann Arbor, from Colorado. They are mostly of high grade, and are well adapted for the use of students beginning the subject of Assaying. The price paid for them was simply their market value, reference being had solely to the amount of metal contained, as shown by the assays. The laboratory now needs a supply of ores of lower grade, and large quantities of copper rock and iron ores from Lake Superior and other mineral regions. The chief item of cost of such ores will be the transportation from the mines.

The value of this laboratory to the University is not to be estimated by the number of students entered upon the annual calendar under the head of Mining Engineering. The courses in Determinative Mineralogy, Blow-pipe Analysis, and Assaying, have proved attractive to students, whose principal work was in other departments, and there will undoubtedly be in the future a large number each year of special students, who wish to obtain a knowledge of Mineralogy, or Assaying, without being able to spend the time necessary for a complete course of study. It seems to be a good policy for the School of Mines to encourage such students, as far as it can be done without detriment to the work of regular classes.

In connection with the laboratory a beginning has been made toward the formation of a metallurgic and industrial cabinet. Through Mr. C. R. Wells, of Bay City, a collection of iron ores and products, comprising one hundred specimens, has been secured for this cabinet from Cincinnati, and Mr. D. T. McDonald,

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of Calumet, has sent a set of sixteen specimens of copper and silver ores from Lake Superior. Messrs. Rhodes & Co., of Cleveland, have expressed a willingness to place at the disposal of the University their valuable collection of iron ores and manufactured products, now on exhibition at Philadelphia. Mr. S. W. Baird, of Cincinnati, agent of the Selma, Rome and Dalton Railroad, has also generously offered to give to the University a collection of mineral specimens, selected from the exhibit made by that road at the Centennial exhibition, at no expense to us but the freight. This offer has been accepted, and correspondence has been opened with other exhibitors, with good prospects of receiving other contributions similar in kind. A set of forty-two samples, to illustrate the method of separating the metallic copper from the enclosing rock, was collected by myself at the Atlantic Mill, near Houghton, last June, and will be ready for exhibition as soon as the proper bottles for it are received. For this collection the thanks of the school are really due to Mr. W. J. Evans, superintendent of the mill, who freely granted me every desired facility, and spent himself the greater part of one day in the work of collecting. From Mr. A. J. Corey, Superintendent of the Quincy Mine, I also obtained a diamond drill core, illustrating the character of the country rock.

The mineral collection purchased for the use of the students, comprises between 675 and 700 specimens. It is at present kept in drawers in the room adjoining the geological lecture room, where it is easy of access whenever wanted. A few of the glass crystal models imported from Germany a year ago, were injured in transportation. It will be desirable to replace these with new ones, and to purchase about fifty models in addition to what we now have. The number of wooden models can also be increased to advantage.

For the illustration of lectures to be given in Geology, Mining, and Metallurgy, wall diagrams in considerable quantity will have to be provided. The most satisfactory way of supplying our needs in this direction will be by employing a competent draughtsman upon the work for two or three months, or longer if necessary. Models of furnaces and of such mining machinery

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as cannot be sufficiently well illustrated by diagrams will also be needed.

The model of the stamp mill of the Calumet and Hecla Mining Co., presented by the Company, will be of great use to us. The gift is as timely as it is munificent.

The general library, as is well known, is poor in the literature of mining and metallurgy; and the small annual allowance from the library fund is insufficient to supply the deficiencies. It is hoped that the next legislature will appropriate a generous sum, to be available for the purchase of books.

The distance of the University from the mining regions of the country is so great that it will not be practicable to arrange for very frequent excursions to places where works of the kind described in the text-books and lectures are to be seen in actual operation. In place of such excursions, which might be made extremely profitable to the students, it is recommended that portions of the long vacation be regularly devoted to field instruction. Summer schools could be established at such places as Marquette, Ishpeming, or Houghton—at different places in different years—where the students, under the guidance of the professor or other instructor, could acquire an insight into the methods of actual practice. A portion of the time could be spent in visiting the mines, mills, and furnaces of the neighborhood, and the remainder in arranging notes, collecting specimens, and preparing a detailed report upon the work of the season. The chief objection to such a scheme will doubtless be the expense, and the objection is in truth a serious one. Still, in consideration of the positive advantages to be gained, it seems worth while to make the suggestion at this time, in the hope that some means may be devised for carrying it into effect.

No large sum would be required for the general expense of such a school. It is the increased personal outlay, both in the case of student and of instructors, for which provision would have to be made. If there were a permanent fund, created by voluntary subscription, or by an act of the Legislature, the income of which could be used, under the direction of the Board of Regents, for paying a portion of the extra expenses incurred by meritorious

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